



Forest Health Protection Pacific Southwest Region



Date: July 15, 2015

File Code: 3400

To: Eduardo Olmedo, Grindstone District Ranger

Subject: Trip report following site visit to Beetle Trough project area

At the requests of Tony Saba, Silviculturist (Mendocino NF), a site visit was made to the Beetle Trough project along the M2 road in the Tatham and Trough Ridge area of the Grindstone Ranger District, Mendocino National Forest on July 13, 2015. The objective was to assess the current stand conditions, evaluate the project for potential funding through the Forest Health Protection (FHP) Western Bark Beetle Initiative using section 602 of the 2014 Farm Bill (Categorical Exclusion for Forest Health).

Background

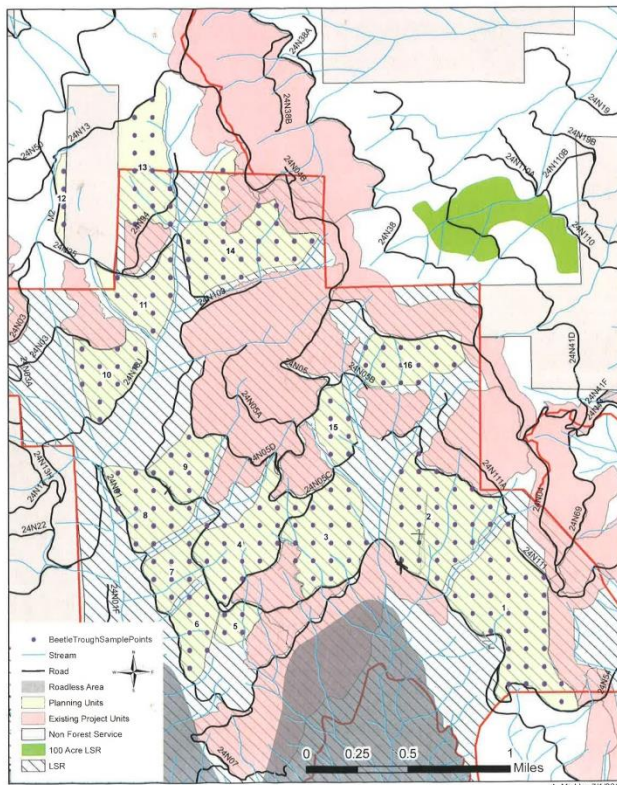


Figure 1. Beetle Trough Project (in light green) location in association with Tatham Ridge Project (in red). All areas with cross-hatching are within Buttermilk LSR.

The Beetle Trough Project area is located within the general area of the Tatham Ridge Fuelbreak Project of 2011 (Figure 1) within and adjacent to the Buttermilk LSR, approximately eight miles west of Paskenta (T24N, R8W, sec. 13-16, 21-24, 25-28, and 34-36, Mt. Diablo Meridian, average elev. 5,300 ft.).

The Tatham Ridge area was first visited in 2012 to assess the Buttermilk Late Successional Reserve (LSR) / Tatham Ridge Fuelbreak Thinning Project designed to reduce wildfire hazard, to accelerate tree growth for sustained timber productivity, and to develop late-successional habitat in accordance with the Buttermilk LSR. The objectives were to decrease stand density, maintain vigorous tree growth, and reduce the risk of bark beetle-caused mortality and stand replacing fires in the Tatham Ridge

**NORTHERN CALIFORNIA SHARED SERVICE AREA
3644 AVTECH PARKWAY, REDDING, CA 96002
(530) 226-2437**

Cynthia Snyder
clsnyder@fs.fed.us

Pete Angwin
pangwin@fs.fed.us

plantations. Thinning was planned to provide species diversity and increase stand resiliency and move the stands to a condition which would permit the introduction of prescribed fire to maintain desired fuel loading and levels of competing vegetation. The Tatham Ridge Project was not finalized due to litigation and NEPA is only set to begin for the Beetle Trough stands.

The Buttermilk LSR is the largest functional LSR on the forest and a crucial link between various other LSRs in the region. LSR is a land allocation designed to provide habitat for endangered species such as the northern spotted owl. Lack of fire in the project area for a period of time equal to multiple historic fire return intervals, coupled with a significant departure from historic vegetative structures places the majority of the proposed area in a condition class of III - showing high departure from historic conditions and at risk for the loss of ecosystem components. (Smokey Fuels Report). Fire suppression and logging are largely responsible for creating the present day forests in and around the project area. Plantations in the area are over-stocked with healthy conifers but also include substantial volumes of competing vegetation including live and black oak. Current density and levels of competing vegetation increases vulnerability to both fire and insect-caused mortality.

Observations

There were two types of stands visited in the Beetle Trough area. Stands within the lower elevations of the project area were predominantly natural stands of ponderosa pine (*Pinus ponderosa*), the primary component of large overstory trees (20" DBH and greater), found in combination with scattered incense cedar (*Calocedrus decurrens*), Douglas-fir (*Pseudotsuga menziesii*) and sugar pine (*Pinus lambertiana*). Hardwoods, such as black oak (*Quercus kelloggii*) are common in these areas. Stands ranged from being uniformly dense to clumpy with small scattered openings, with diameters between 4 and 24+ inches. The understory was dense with live oak. Stands in the upper elevations were primarily mature white fir (*Abies concolor*) with several legacy ponderosa pine scattered throughout (Figures 2 and 3). The understory was mostly park-like but dominated by white fir saplings.



Figure 2. Clumpy distribution of ponderosa pine at mid-elevations along M2 road in Beetle Trough area.

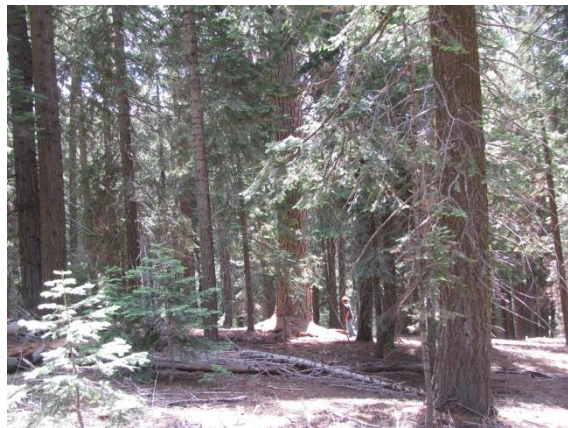


Figure 3. Large white fir with scattered legacy ponderosa pine in upper elevations in Beetle Trough area. Silviculturist standing next to pine for scale.

Most of the proposed stands are at or exceeded 60% maximum stand density index (SDI). The measurement of SDI is used to relate stand density to the biological carrying capacity of a stand. Barring disturbance, stand density increases over time as trees grow increasingly larger. For most species, as stands reach and exceed densities of 60% of a maximum SDI, density related tree mortality becomes increasingly evident. An SDI of 365 is considered limiting for ponderosa pine due to increased risk of bark beetle-caused mortality. As ponderosa pine-dominated stands reach and exceed an SDI of 230 (roughly 60% of the SDI of 365) bark beetle-caused mortality is increasingly likely.

Pockets of recent and ongoing mortality in ponderosa pine were occurring in numerous stands throughout the lower elevations of the project area as a result of western pine beetle (*Dendroctonus brevicomis*). Mortality pockets average 10 – 25 trees in size and were found across the elevational grade of the ridge (Figure 4). Western dwarf mistletoe (*Arceuthobium campylopodum*) was common, especially on pine regeneration but not



Figure 4. Western pine beetle-caused mortality in ponderosa pine extends across Trough and Tatham Ridges.

excessively heavy in the overstory (Figure 5). Dwarf mistletoe adds an additional stress on the trees by parasitizing water and nutrients from the host. Heterobasidion root disease in white fir (*Heterobasidion occidentale*) was suspected in one of the upper elevation stands (Figure 6).

2014 Aerial survey detected over 1,000 acres with elevated mortality in the area. The area was also highly impacted by bark beetles in 2013.



Figures 5 and 6. Western dwarf mistletoe (on the left) in ponderosa pine, and suspected root disease center (on the right) in white fir.

Discussion

Thinning in this area in such a way as to meet the minimum requirements for western bark beetle funding is supported by the FHP staff through this evaluation. Requirements would include reducing density to a level that would remain less than 60% of maximum SDI for a minimum of 20 years to avoid re-entry in that time frame. To meet the requirements of section 602 of the 2014 Farm Bill, an area must meet at least one of the following criteria:

- Experiencing forest health decline based on annual forest health surveys;
- At risk of experiencing substantially increased tree mortality based on the most recent Forest Health Protection Insect and Disease Risk Map; or
- Contains hazard trees that pose an imminent risk to public infrastructure, health, or safety.

The area clearly meets the first criteria; is at risk of losing 6-24% total basal area due to insects and disease according to the 2012 Risk Map; and the level of use on the M2 road would likely meet the third criteria. If thinned across all diameters, the Beetle Trough project would fit well with Western Bark Beetle Initiative guidelines to reduce risk of bark beetle-caused mortality and would be supported by FHP.

Western dwarf mistletoe, although present, does not seem to pose a risk for stands at this time. Thinning may include sanitation to remove brooms when located to further reduce risk of further spread. Thinning should incorporate prioritizing tree species and diameter classes to increase diversity, which may slow the spread of insects and disease. Heterobasidion root disease, if confirmed at the upper elevations in white fir, may be treated as a natural thinning agent in the white fir and application of a borate compound would be at the discretion of the line officer.

If you have any questions regarding this report and/or need additional information, please contact Cynthia Snyder at 530-226-2437 or Pete Angwin at 530-226-2436.

/s/ Cynthia Snyder

Cynthia Snyder, Entomologist
Northern California Shared Service Area

CC: Tony Saba, Andrew Mishler, Chris Losi, Kathy Roche, Pete Angwin, Sheri Smith,
Chris Fischer, Sherry Hazlehurst, and Phil Cannon